

In re Patent Application of
GRIS
Serial No. Not Yet Assigned
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In the Claims:

Claims 1-14 (Cancelled).

15. (New) A process for doping a pattern of electrically isolated resistive elements comprising:
electrically charging selected elements of the pattern;
doping the charged elements as a function of their charge; and
annealing the pattern.

16. (New) A process according to Claim 15, wherein the electrically charging is performed using at least one of an electron beam and an ion beam.

17. (New) A process according to Claim 15, wherein the electrically charging comprises:
electrically charging all of the elements of the pattern; and
discharging elements other than those corresponding to the selected elements using a laser beam.

18. (New) A process according to Claim 15, wherein the doping results in ions being absorbed on a surface of the charged elements.

19. (New) A process according to Claim 18, wherein the ions are produced using plasma; and wherein the ions comprise at least one of boron, aluminium, indium, phosphorus, arsenic and antimony.

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20. (New) A process according to Claim 15, wherein the doping comprises implanting ions on a surface of uncharged elements with an energy of less than 100 eV.

21. (New) A process according to Claim 20, wherein the implanted ions comprise at least one of boron, aluminium, indium, phosphorus, arsenic and antimony.

22. (New) A process according to Claim 15, wherein the selected elements of the pattern comprise a semiconductor material.

23. (New) A process according to Claim 22, wherein the semiconductor material comprises at least one of silicon, germanium and gallium arsenide.

24. (New) A process for manufacturing an integrated circuit in a silicon substrate comprising:

forming an insulating layer on the silicon substrate;

forming a silicon layer on the insulating layer;

forming a pattern of resistive elements in the silicon layer;

electrically charging selected elements; and
doping the charged elements as a function of their charge.

25. (New) A process according to Claim 24, wherein the elements that are charged are separated by conducting lines connected to a fixed potential.

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26. (New) A process according to Claim 24, wherein the electrical charging is performed using at least one of an electron beam and an ion beam.

27. (New) A process according to Claim 24, wherein the electrical charging comprises:

electrically charging all of the elements of the pattern; and

discharging elements other than those corresponding to the selected elements using a laser beam.

28. (New) A process according to Claim 24, wherein the doping results in ions being absorbed on a surface of the charged elements.

29. (New) A process according to Claim 28, wherein the ions are produced using plasma; and wherein the ions comprise at least one of boron, aluminium, indium, phosphorus, arsenic and antimony.

30. (New) A process according to Claim 24, wherein the doping comprises implanting ions on a surface of uncharged elements with an energy of less than 100 eV.

31. (New) A process according to Claim 30, wherein the implanted ions comprise at least one of boron, aluminium, indium, phosphorus, arsenic and antimony.

32. (New) An apparatus for selectively doping a pattern of electrically isolated resistive elements, the

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apparatus comprising:

a main lock; and

a plurality of chambers accessible through said main lock, said plurality of chambers comprising a first chamber for charging at least one selected element in the pattern, a second chamber for doping the charged elements as a function of their charge, and a third chamber for annealing the pattern.

33. (New) An apparatus according to Claim 32, wherein the pattern of electrically isolated resistive elements are on a wafer; wherein said first chamber comprises an electron beam generator; wherein said second chamber comprises a plasma generator for generating doping ions for the wafer; and wherein said third chamber comprises a heater for annealing the wafer.

34. (New) An apparatus according to Claim 32, further comprising a plurality of secondary locks corresponding to said plurality of chambers; and wherein said main lock distributes the wafer in said first, second and third chambers through respective first, second and third secondary locks.

35. (New) An apparatus according to Claim 32, wherein said first chamber electrically charges all of the elements in the pattern, and discharges elements other than the one corresponding to the at least one selected element using a laser beam.

36. (New) An apparatus according to Claim 32,

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wherein said second chamber causes ions to be absorbed on a surface of the charged elements.

37. (New) An apparatus according to Claim 36, wherein the ions are produced using plasma; and wherein the ions comprise at least one of boron, aluminium, indium, phosphorus, arsenic and antimony.

38. (New) An Apparatus according to Claim 32, wherein the selected elements of the pattern comprise a semiconductor material.